DOCUMENT RESUME

ED 310 819 JC 890 427

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TITLE A Conceptual Framework for Describing the Causes of Student Attrition. Institutional Research Report #44.
INSTITUTION Philadelphia Community Coll., PA. Office of Institutional Research.
PUB DATE Jan 89
NOTE 44p.; For a related document, see JC 890 426.
PUB TYPE Reports - Research/Technical (143) -- Information Analyses (070)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Academic Persistence; Community Colleges; *Dropout Research; *Evaluation Methods; Institutional Evaluation; *Institutional Research; Literature Reviews; School Holding Power; *Student Attrition; Student College Relationship; Student Educational Objectives; Two Year Colleges
IDENTIFIERS *Tinto Theory

ABSTRACT

This paper describes the conceptual model of retention used as the framework for research on institutional effectiveness at the Community College of Philadelphia (CCP). First, an overview of the literature on student attrition is presented, followed by a specific review of research based on Tinto's model of student attrition. This model maintains that the two primary factors related to student withdrawal are the personal characteristics of the student and the nature of the student's interaction with the college. The review indicates, however, that inconsistencies exist in the correlation of these two factors to student persistence. Next, Tinto's model is applied to recent research findings at CCP to determine its appropriateness as a guide for developing strategies to increase student retention. Specifically, general retention patterns at the college are compared to student characteristics, revealing the following: (1) in general, 6% of the White students were likely to graduate in two years, compared to 2.2% of the Black students, 1.5% of the Asian students, and 1.4% of the Hispanic students; (2) while students receiving financial aid were more likely to graduate than students receiving no aid, they were also more likely to be dismissed for academic reasons; (3) a close correlation was found between low admissions test scores and student withdrawal; (4) students who attended private high schools generally had higher grade point averages and lower attrition rates than public school graduates; and (5) students who entered CCP at a remedial level and enrolled in remedial programs persevered as well as college-level entrants. Finally, the paper concludes that a correlation does exist between student characteristics, college experience, and persistence in CCP research findings, making Tinto's model an appropriate guideline for institutional assessment efforts. A 55-item bibliography is appended. (BCY)

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A CONCEPTUAL FRAMEWORK FOR DESCRIBING THE CAUSES OF STUDENT ATTRITION

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JANE GROSSET
Institutional Research
Report #44

January, 1989

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Preface

Defining and implementing strategies to improve the retention of students is a major focus of institutional activity at the present time. The need for this effort has been documented in several recent studies. The 1988 Institutional Effectiveness Performance Study (Report Number 42), published by the Office of Institutional Research, highlighted a potential institutional concern about differential retention rates for various student subpopulations enrolling at the College. More recently, the 1988 Statistical Compendium in its introductory section reported on an apparent diminishment in the College's retention of students across most major demographic subpopulations. Several other studies examining institutional retention patterns are currently being prepared. While our ability to describe retention patterns has grown with the enhancement of institutional data bases, we are still not able to fully answer the questions of why we appear to retain some students more effectively than others and whether or not it is an indication of institutional ineffectiveness that many students leave CCP after only a short stay.

Better understanding of potential institutional weaknesses with respect to retention can be facilitated by the development of modeling approaches intended to help to identify the most important causal forces which lie behind students' decisions to continue or end their enrollment. In this paper, Jane Grosset summarizes an ambitious literature review of retention research. Based upon this study, she describes a conceptual model of retention which will guide institutional research efforts at the College for the next several years. She also takes a comprehensive look at past institutional research findings at CCP and relates these findings to the intended model of student retention.

For those who are unfamiliar with previous institutional research at CCP and/or the extensive published retention research, this paper may serve as a useful introduction to help understand both current institutional research efforts and retention initiatives that are under way or proposed for the College.

During the 1989 year, three institutional research activities will focus on student retention:

(1) Continuation of efforts to describe institutional retention patterns in order to clarify trends and shifts in student enrollments.

(2) Completion of a research project intended to describe the reasons why a significant number of students choose to leave the College having completed fewer than 12 credits.

(3) Initiation of the first in a series of studies to look at variables associated with differences in black and white student performance at the College. This research will try to describe the reasons behind the phenomenon of differentials in performance which exist for black and white students after controlling for entering ability.

Throughout these institutional research efforts, our emphasis will be on identifying variables which are potentially impacted upon by institutional policies or practices. Our hope is to describe factors which are both important in influencing student success and carry the possibility of being manipulated through institutional change. As should be clear from a careful reading of this paper, this is a complicated agenda but one of great importance in our continued efforts to understand and enhance institutional effectiveness.

Thomas R. Hawk

January, 1989

A CONCEPTUAL FRAMEWORK FOR DESCRIBING THE CAUSES OF STUDENT ATTRITION

Introduction

Few institutional research issues have received as much attention as student retention in higher education. Over the years, literally thousands of studies of student retention have been conducted at colleges and universities throughout the country.

The pressure of enrollment decline appears to have contributed substantially to past institutional interest in student retention. It is common for persistence articles to cite projected figures related to dwindling numbers of traditional college-aged individuals in the general population and the dire consequence this expected decline will have on future enrollment trends in higher education.

At the same time that the projected number of potential traditional college-aged students drops, graduation rates from higher education remain low.

Consider that more students leave their college or university prior to degree completion than stay. Of the nearly 2.8 million students, who in 1986 entered higher education for the first time, over 1.6 million will leave their first institution without receiving a degree. If only the two-year college sector is considered, the picture is more bleak. Only 29.5% of the entering cohort will persist over a two-year period in the college in which they first register. Of this group, nearly 13% will have earned their two-year degrees (Tinto, 1987).

The expected impact on higher education enrollments of fewer potential students to draw from and large numbers of enrolled students who leave prior to earning a degree and need to be replaced has resulted in a considerable body of research that policymakers hoped would provide them with direction to develop strategies that would ensure enrollments at levels that insure their financial future. Many of these enrollment remedies centered around recruitment and admission strategies which redirected institutional marketing efforts at less traditional college-aged groups (25+ years) and/or at potential students who were considered to be the best prospects to graduate.

While these strategies have provided quick fixes to the problem of enrollment maintenance in some segments of higher education, they are impractical for many institutions, such as community colleges, which have been serving the less traditionally-aged college sector for some time and are precluded from enforcing college-entry selection criteria by virtue of their open-admissions character.

In addition to the operational impediments the implementation of selective recruitment and admission strategies pose for some institutions, it can also be argued that remedies of these types deal superficially with the important issue of student retention. Viewed within the context of a simplified evaluation model (Input - Process - Output), selective recruitment and admission strategies focus on the extreme components of the model (student characteristics and student outcomes), ignoring the process (educational experience) that transforms one to the other.

Strategies aimed at the admission of low-risk students who are judged likely to graduate imply that student characteristics are the principal determinants of student persistence/withdrawal behavior and conversely that the educational process has little to do with the decision to drop out. Unfortunately, since dropouts tend to come from less-well-to-do families, be somewhat less academically able, and hold less lofty educational and occupational goals, the use of selective recruitment and admission strategies as a remedy for attrition deny those individuals who are already underserved by higher education and could benefit most from a college experience.

Since many colleges are enrollment or tuition-driven enterprises, the importance of enrollment levels to the economic well-being of these schools cannot be ignored; however, student retention is more than an enrollment management problem. It is an effectiveness issue which needs to consider the educational process as well as student characteristics that contribute to premature student departure.

Brief Review of Published Retention Research

History of Attrition Literature

Institutional responses to the problem of student attrition have evolved from the development of recruitment strategies, which were aimed at maintaining enrollment during a period of anticipated decline by targeting previously untapped markets; to admission programs, which were designed to improve graduation rates and minimize the need to replace students; to the design of retention programs, which have sought to maintain enrollments by improving the quality of the educational experience for the student.

This evolution has closely paralleled the development of conceptual and methodological tools that have become available to educational researchers concerned with this problem. Recently developed theoretical models of student attrition have provided a conceptual framework for understanding the complexities of attrition and calling policymakers' attention to important process factors they had been ignoring. At the same time, the development and availability of multivariate statistical

procedures and packaged computer programs to handle the complex interrelationship between variables implied by the models have had a hand in altering the type of information that researchers have been able to provide to educational policymakers. It could be argued that early attrition strategies were less reflective of the insensitivity of educational policymakers to the quality of the student experiences and more a function of the type of information that was available to guide their actions.

For the most part, retention articles can be characterized by three general types: descriptive studies, studies that focus on student pre-entry characteristics, and longitudinal process studies. The first two types of studies seek an understanding of what students are like at the time they enter and after they leave a college, while process studies are characterized by cultural inquiries which seek to understand the student experience on campus.

In descriptive studies, empirical generalizations are made about the extent of attrition, the critical points in a students' enrollment when attrition is most likely to occur, and the characteristics of students who drop. For the most part, these studies rely on univariate or bivariate statistical procedures and, in some instances, present little more than a series of frequency and percentage distributions.

Although Beal and Noel's (1980) work focused on institutional rather than student characteristics associated with attrition, it provides a good example of the type of information which typically results from a descriptive approach. Comparing differences in national graduation and freshmen retention rates for undergraduate programs based on institutional characteristics such as type and selectivity, they found differing rates from one type of postsecondary institution to another. Rates were lower for two-year colleges than for four-year institutions, lower at public colleges than at private colleges, and lower at institutions with an open-admission policy than at selective colleges.

Eckland and Henderson's (1981) study provides an example of information produced by a descriptive approach that focused on student rather than on institutional characteristics. In their study, students of different race, ability, and social status origins differed markedly in the rate at which they left higher education. Rates of departure were highest for Hispanics and Blacks and for persons of lower ability and social status background.

Retention studies which focus on the pre-entry characteristics of students have much in common with studies that are based on a descriptive approach. In general, these studies have attempted to identify the input characteristics of students which are the best predictors of drop-out prone students. Somewhat more complex analytical techniques, such as multiple

regression and discriminant analysis, are used in these latter studies.

Predictors in these studies have generally included student characteristics related to academic ability, demographics, and financial and motivational factors (Lenning, Beal and Sauer, 1980).

In these studies, academic factors have been found to have the most effect on retention; many students who have or perceive academic difficulties drop out. Studies of student demographic factors, such as ethnicity or sex, have proven to be rather inconclusive or to have no effect at all on student retention when other factors such as SES level, academic ability, and motivation were controlled.

Astin (1975) extensively explored the relationship between student aspirations, motivations, and persistence behavior. His findings indicated that motivational factors such as degree aspirations, drive to achieve, commitment to an educational goal, and various conditions of employment were all related to college persistence.

Unfortunately, programs based on research of this type failed to have a positive impact on enrollment levels, in part, due to the atheoretical research framework of most descriptive studies and studies of student pre-entry characteristics. As a consequence, these types of studies have not provided an understanding of the causes of student-leaving behavior.

Tinto's Model of Student Departure from Higher Education

In the broader context of social policy development, Shotland and Mark (1985) observed that the creation of useful social programs and policies was enhanced by the use of theoretical frameworks that focused on process variables that policymakers were able to manipulate.

In recent years, research in the area of student persistence/withdrawal behavior has been increasingly characterized by policy-oriented approaches that have assumed the decision to withdraw is more a function of what occurs after entry to a college rather than what precedes it. As a consequence, this type of research has facilitated the design of remediation strategies which were prescriptive in nature.

Tinto's (1975) theoretical model of student attrition has contributed greatly to a change in focus. His longitudinal process model has provided a theoretical structure that has greatly contributed to an understanding of the character and roots of individual student departure from institutions of higher education.

Tinto views the dynamics of attrition from an interactionist's perspective. Colleges are like other human communities and student departure is a reflection of both the attributes and actions of the individual and those of the other members of the community with whom the individual interacts. As such, Tinto believes that retention rates serve as an indicator of institutional quality and health, and that retention studies reveal much about the character and problems within a college.

Tinto purports that two factors are the primary causes of individual withdrawal from college. Directly involved in the withdrawal decision are the personal attributes of students which predispose them to respond to given situations or conditions with particular forms of behaviors, and the nature of student interactional experiences within the institution following entry.

Intentions and commitments are two categories of personal attributes which predispose some students toward departure. Intentions are aspirations, most often stated in terms of educational and occupational goals, toward which student activities are directed. Commitments, on the other hand, represent important aspects of personality which incline a person toward completion of tasks once begun. With regard to commitment, Tinto believes it is important to consider student commitment to both their educational goal(s) and their commitment to a specific institution.

While students enter college with intentions and commitments which set the limits of their educational attainment and influence their experiences within the college, Tinto purports that they are subject to change over time. They come to reflect the character of student experiences within the institution. Though prior student intentions and commitments may, in some cases, lead directly to departure from college, Tinto assumes their principal impact on attrition/retention behavior is contingent on the quality of student interactions with other members of the institution following entry and on the students' assessment of the degree to which these interactional experiences meet his or her needs and interests.

This concept of student-institutional fit is central to the model. Tinto believes that integration is an important interactional outcome that arises from an individual's experiences within the institution. Integration is the degree to which intellectual and social experiences within the institution following entry assimilate students into the intellectual and social life of the institution. The level to which a student integrates into these systems is the primary determinant of choosing to stay and meet objectives, or to drop out of the institution. Theoretically, for two students with similar intentions or goals and the same level of initial commitments, a higher degree of integration into the college systems for one would mean greater subsequent educational goal and institutional commitment.

Absence of integration arises from two sources: incongruence and isolation. Incongruence results from a mismatch between the abilities, skills and interests of the student and the demands and opportunities of the academic and social systems of the college, while isolation occurs where there is an absence of sufficient contact between the student and other members of the social and academic communities of the college. Tinto views some level of incongruence-related institutional departure as inevitable, on the other hand, he feels isolation-related departure need not occur.

Although the model assumes that the decision to drop is largely the result of events which take place within the institution following the student's entry, Tinto believes it also reflects the pre-entry attributes and skills of students and the pressure of external student commitments. The model therefore includes several categories of variables, pre-entry attributes, initial goals and commitments, academic integration, social integration, and later goals and commitments. Tinto causally links these variable categories in a longitudinal fashion. The hypothesized flow of events and their direct and indirect impacts are indicated in Figure 1.

Student pre-entry characteristics include measures related to family and community background, intellectual and social skills, and varying types of pre-college educational experiences and achievements. It is hypothesized that these background characteristics interact with each other and influence the ways in which students interact with the college environment by directly affecting initial intentions and commitments.

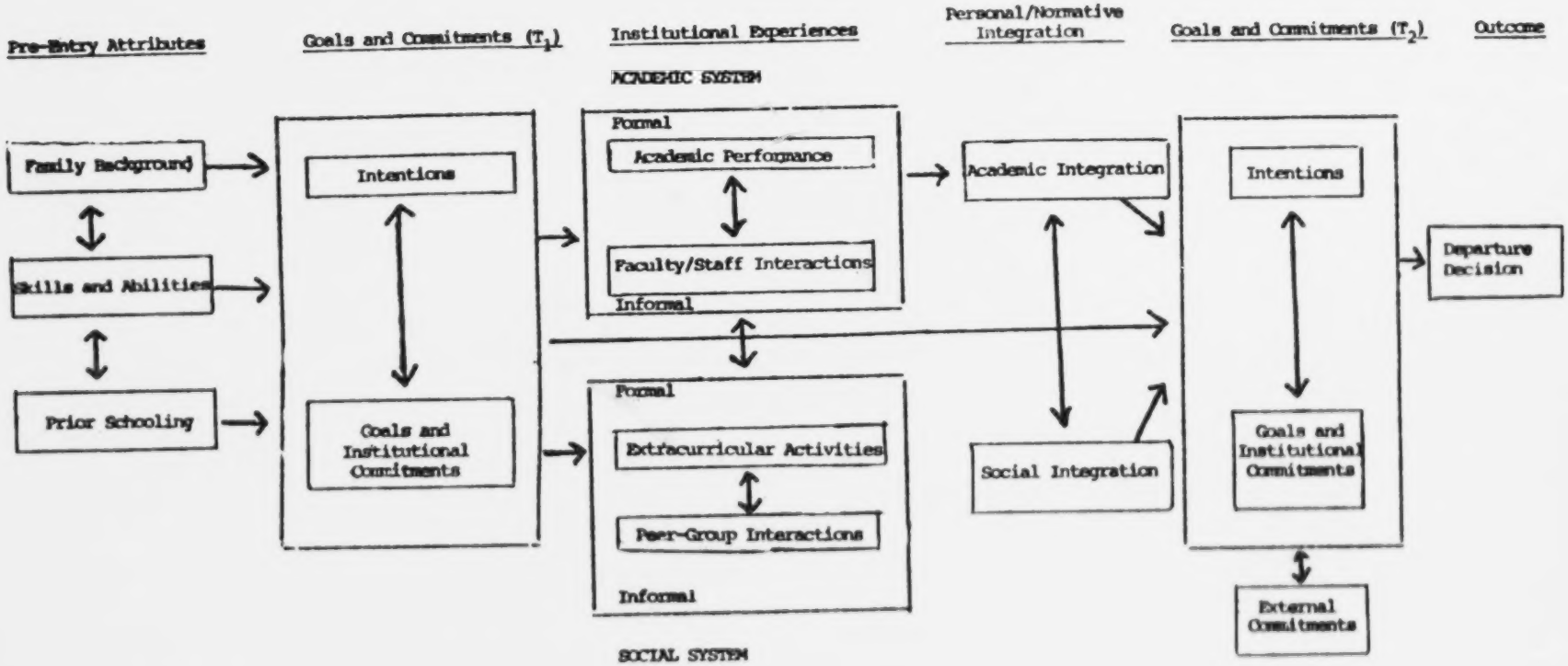
Student intentions and commitments, in turn, directly affect the subsequent interactions between the student and other members of the institution. It is through these interactions with the environment that students become integrated to varying degrees into the system both academically and socially.

The academic system of the college centers around the activities that are concerned with the formal education of students. It includes involvement with faculty and staff who are primarily responsible for the training of students.

The social system centers about the daily life and personal needs of the various members of the institution. It includes interactions among students, faculty and staff, which take place outside of the academic domain of the college.

The model distinguishes between the formal and informal aspects of each system. The formal social system of the college represents structured, extracurricular activities, while the informal system includes the day-to-day casual activities among the members of the college. Classrooms and laboratories set the boundaries of the formal academic domain of the institution,

A MODEL OF INSTITUTIONAL DEPARTURE



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A Model of Institutional Departure

Source: Derived from Tinto, V., "Drop Out from Education," Review of Educational Research, 1975, 45(1), 89-125

FIGURE 1

while informal academic interactions occur outside the formal boundaries of this system.

These student interactions in the academic and social systems of the college continually act to modify goal and institutional commitments in ways which lead to persistence or dropping out. The experiences of students in each system may have quite separate effects upon their persistence or withdrawal from the institution. For example, in the academic system, initial goal commitment leads to higher grade performance and intellectual development; which leads, in turn, to academic integration; which, in a circular fashion, leads to even greater goal commitment. In turn, goal commitment reduces the likelihood of dropping out. In the social system, institutional commitment is expected to produce peer group and faculty interaction; which leads to social integration; which, in turn, increases institutional commitment. This is also expected to reduce the likelihood of dropping out.

Since student intentions and commitments are not assumed to be fixed, they appear twice in the model. Their first appearance is the product of pre-entry characteristics, while the second appearance of these variables is assumed to be the product of student academic and social experiences.

The model does not argue that full integration in both systems of the college is necessary for persistence. Nor does it claim that failure to be integrated in either system necessarily leads to departure. A mutually compensatory relationship is hypothesized between social and academic integration in that a low level of academic integration within a given institution may be compensated for by a corresponding high level of social integration and vice versa. Tinto, however, does purport that some degree of social and intellectual integration must exist as a condition for continued persistence.

Though the model emphasizes the role of intra-institutional experiences, it does not exclude the possibility that external events can also influence individual decisions regarding departure. Social forces external to the institution may influence student decisions regarding behavior in the institutional setting. External communities including families, work settings, and peer groups may serve to counter, rather than support, participation in college communities. This is especially so when the requirements of membership in an external community are counter to those for membership in an institutional community. A form of role conflict may develop and the student may be faced with having to choose between college participation and participation in non-college activities. The strain of such conflicts may undermine integration in college.

The model assumes that the impact of these external commitments do not directly affect the decision to drop or persist; however, instead, their influence on drop decisions is observed in the students changing intentions and commitments.

Review of Research Based on Tinto's Model

While there are several other models of student attrition (Pascarella, 1980; Spady, 1970), Tinto's model is the most widely cited. It is distinct from the others in that it is based on a dynamic, interactive view of student experience in the total culture of the institution, and it seeks an understanding of student departure in terms of the interpretation and meaning that individuals attach to their experiences within the institution (Antanassi, 1988).

Numerous studies exist in the retention literature that have sought to validate all or part of Tinto's model. Many of these articles have represented exemplary research projects (Bean, 1982, 1983, 1985; Pascarella and Chapman, 1983; Pascarella and Terenzini, 1980, 1983; Terenzini and Pascarella, 1977, 1978) that have generally validated the importance of the two-core concepts of academic and social integration.

Much of the empirical research that has been guided by Tinto's model has been conducted at four-year, largely residential institutions. This would be expected since the model was developed to explain withdrawals from a four-year college setting. Unfortunately, a considerable gap exists in the attrition literature with regard to students in non-residential college settings. The few studies that have been conducted in non-residential settings have been, for the most part, at four-year commuter schools, not two-year colleges. Yet, two- and four-year colleges differ in their institutional mission as well as their student bodies. These differences limit the applicability of results conducted in non-community college environments for two-year colleges.

In large part due to their open admission policies and their community-needs orientation, community colleges, especially those in an urban environment, attract students who are less likely to complete a degree program than students who enroll at many four-year colleges. In general, community college students are older, more likely to be enrolled on a part-time basis, and attend classes for a wide variety of reasons other than obtaining a degree. Additionally, inner cities, the urban community college clientele, are disproportionately composed of racial and ethnic minorities, most of whom are from lower socioeconomic strata and are somewhat less academically able than students at either suburban community colleges or four-year institutions. Within the frame of the model, student background characteristics such as these are expected to influence student goals and commitments. Since inner-city students tend to come from backgrounds where higher education is neither understood nor advocated, they generally hold less lofty educational and occupational goals (Richardson and Bender, 1987).

In addition to differences in student pre-entry characteristics and the educational goals and commitments they hold, community colleges and four-year colleges differ with regard to their academic milieu. In case studies of organizational cultures across institutional types, Richardson and Bender (1987) observed that two- and four-year colleges were characterized by different belief systems and behaviors that give these beliefs meaning. As a consequence, divergent organizational cultures developed which have shaped the types of educational opportunities provided to students in two- and four-year colleges.

The impact of the academic and social systems are not symmetrical across institutional types. For example, in two-year colleges, the two environmental systems tend to be segregated and unequal in size. Given the non-residential nature of community colleges, social systems comprised of interacting students are often times missing or, at best, minimally addressed.

The influence of external pressures would also be expected to figure more prominently in the dropout behavior of non-residential, commuter students, since many of these students are part-time, hold jobs off campus, and are likely to have more complicated family responsibilities than resident students. Any of these other commitments can create external demands on a community college student which may conflict with college persistence.

Given these differences, research based on Tinto's model of student attrition that was conducted at commuter or community colleges was of principal interest.

Pascarella and Chapman conducted several multi-institutional studies (1983 a, b) that explored persistence patterns across four institutional types: four-year residential, liberal arts, two-year commuter, and four-year commuter colleges.

In the Chapman and Pascarella (1983) article, they compared patterns of student social and academic integration across these institutional types. They limited their samples in each school setting to first-time freshmen enrolled full-time in degree-granting programs. Results indicated that, after controlling for differences in student characteristics, patterns of student involvement in the academic and social life of their college differed significantly by institutional type. Students in residential institutions tended to be higher in both academic and social integration than students in commuter settings, two- or four-year.

While differences existed in both systems, those associated with the social environment were most pronounced. Two-year college students were the least socially integrated of the college samples, resident university students were the most socially integrated, and four-year commuter students fell

somewhere in between. Two-year college students in their sample reported far less informal contact with faculty on academic and non-academic matters and fewer informal conversations with peers than students in other college settings. Given the greater dropout rates associated with community colleges, Chapman and Pascarella viewed these results as a confirmation of the important influence student integration had on degree persistence and completion in postsecondary education.

In a follow-up study which included measures of student persistence for sample participants, Pascarella and Chapman (1983, b) found results associated with students in residential and liberal arts colleges were consistent with the theoretical expectations of Tinto's model. With differences in background characteristics and personality orientations held constant, persisters in these college samples were significantly more involved in the formal, non-academic life of the institution and had significantly more non-classroom interaction with faculty members than did students who dropped from these settings.

A notably different pattern emerged when the two-year college sample was analyzed. Persisters in two-year colleges had significantly less informal contact with both faculty and peers than did students who withdrew from these colleges. They also found, contrary to expectations derived from the model, that institutional commitment did not have a unique or direct influence on persistence/withdrawal decisions in their community college sample.

Motivated by the combined findings of these studies which called into question the concept of integration in community colleges, Pascarella designed a persistence study with Smart and Ethington (1986) which operationally defined student persistence behavior from a more distal perspective than had been done previously. They noted that prior persistence literature based on the model was limited by studies that measured persistence behavior over a relatively short period of time, in most cases to the end of the freshmen year experience, and at a single institution.

Pascarella et al. recognized the commitment most two-year colleges had to the transfer function and suspected that in single-institution attrition studies conducted at two-year colleges, transfer behavior was confused with drop-out behavior since many community college students who withdrew from these institutions did so in order to transfer to baccalaureate degree-granting colleges. These students dropped from a specific institution, but not from higher education in general. This student transfer behavior would explain, in part, why community college dropouts demonstrated greater levels of academic integration than persisters.

The long-term persistence of students who began their postsecondary education in two-year colleges was studied. The

sample was drawn from students enrolled in 85 community colleges who, at the time of initial enrollment, indicated that they aspired to a bachelor's degree. This group was tracked over nine years in order to measure persistence to baccalaureate degree completion.

The results in the study were in line with theoretical expectations based on the model. While much of the influence of student pre-college traits was indirect, the two variables with the most consistent pattern of significant positive effects on degree persistence and degree completion were academic and social integration at the last college attended.

Based on these results, the authors concluded that Tinto's model was reasonably useful in accounting for the long-term persistence/withdrawal behavior of students who began their postsecondary education careers in two-year schools.

In a study conducted at a four-year commuter institution, Iverson, Pascarella and Terenzini (1984) explored the relationship between student integration and educational aspirations. Based on the model, it was expected that higher levels of integration would lead to greater levels of degree aspiration which, in turn, would lead to persistence. Specifically, they focused on the importance of the quantity and quality of academic and informal student-faculty contact on student self-reported, post-freshmen year education aspirations.

In their sample, informal academic contact with faculty which focused on academic topics was the most common form of student-faculty interaction and had a significant positive influence on post-freshmen year educational aspirations. Little social contact was reported. This result was viewed as consistent with prior research which indicated a general lack of social integration among commuter students.

These studies appear to indicate that the model for students in four-year commuter or two-year community colleges may differ from the model for residential institutions, and suggest a need for research that targets persistence patterns within the community college environment.

Unfortunately, no conceptual models of student persistence behavior have been advanced that were designed specifically for a non-traditional student body typical at a commuter/community college setting. Several efforts have been made, however, to reconceptualize Tinto's model for non-residential settings. Based on the results of multi-institutional studies, such as those cited earlier, these adapted models have generally changed the relative importance of the model's elements. Modifications have generally included placing more emphasis on academic integration and either eliminating or greatly reducing the importance of social integration variables.

Bean and Metzner (1987) designed and tested a theoretical model of the attrition process for non-traditional students. Their model assumed that non-traditional students, which they defined as part-time commuters, were not greatly influenced by the social environment of the institution and were chiefly interested with the college academic offerings. Their model posits that the decision to drop out by non-traditional students was based on four sets of variables: background and defining variables (demographic and high school information), academic performance (GPA), environmental variables (finances, external commitments, opportunity to transfer), and student intent to leave. Social integration variables were included in the model but were not assumed to have a direct effect on persistence.

The results of their study confirmed the lack of importance social integration had on the drop-out decisions of commuter students. For their sample, dropout was a function of academic performance and commitment to the institution.

Additional results indicated that the utility of education for future employment objectives, satisfaction with the student role, opportunity to transfer, and age had indirect effects on dropping out through intent to leave. Age, high school performance, and ethnicity had indirect effects on dropout through academic performance.

Moline (1987) tested an adaptation of the persistence models of Tinto and Bean at a commuter college setting. The model did not include social integration variables. Instead, it placed major emphasis on academic-type variables and also posited that kind and amount of student financial aid awards were important to persistence.

Contrary to expectations, Moline found that none of the financial aid variables had a significant effect on student persistence. Since the tested model, which placed emphasis solely on academic-type variables, accounted for a large percentage of the variance in persistence, Moline concluded that the exclusion of the social integration component of the model in a commuter setting was appropriate.

Although their samples were considered less traditional by virtue of their commuter status than studies conducted in most four-year settings, both the Moline (1987) and Bean and Metzner (1987) studies were conducted at institutions quite unlike community colleges. The setting for the Moline study was a selective liberal arts college in a large institution. The usefulness of the study results for most community colleges was further limited by the study sample which included only full-time freshmen.

Bean and Metzner, on the other hand, limited their sample to part-time commuters; however, the setting for their research was a university not a two-year campus.

While similarities exist between commuter and community colleges based on the non-residential nature of their settings, Pascarella and Chapman found that the context for retention at two-year colleges differed in a number of important respects from that at four-year commuter institutions. Not the least important of these was the fact that two-year college students often entered with the intention of transferring after the completion of a number of college credits and prior to associate degree completion. Their leaving was therefore a reflection of the character of their educational goals and not a lack of intention or weakness of commitment.

Voorhees (1987) conducted one of the few retention studies in a community college setting that was not limited to full-time entering students with degree aspirations. His sample included all students, new and continuing, full- and part-time. He explored the relevancy of key persistence concepts such as social and academic integration, intent to return, and satisfaction with the community college.

His results indicated that persistence for two-year college students was directly related to students' sex, purpose for enrolling, and intent to return in subsequent semesters. On the other hand, academic integration measures such as the number of informal interactions with faculty outside of class and grade point average were shown to be independent of persistence. Satisfaction with the college was relatively unimportant in the persistence decision as well.

In another community college-based retention study, Nora (1987) tested a modified version of Tinto's attrition model on a Chicano student population. He explored background characteristics, related largely to cultural-type variables, to determine the direct and indirect effects of these factors on Chicano retention rates and the direct and indirect effects of institutional/goal commitments, academic integration, and social integration on minority retention rates.

The relationship between measures of social integration and persistence could not be substantiated; moreover, measures of initial commitments were found to have a significantly large direct effect on retention.

Discussion

The research based on non-traditional students has uncovered anomalies and inconsistencies in Tinto's model. In general, results of these studies were only minimally supportive of the model's hypothesized relationship between measures of integration and retention.

The contradictory results across these studies can be understood, in part, within the broad context of differences across institutional types which were discussed earlier. Other important differences existed across these studies which also may have contributed to differences in patterns of institutional persistence. Consider the divergence in the way the dependent variable has been defined. Pascarella and Chapman (1983 a, b); Chapman and Pascarella (1983); Iverson, Pascarella and Terenzini (1984); Bean and Metzner (1987) and Nora (1987) used a similar, rather short-term persistence measure in their studies. Students were tracked over a one year period (Fall semester to Fall semester). Students who reenrolled in both the subsequent Spring and Fall semesters were considered persisters; those who did not were dropouts.

Voorhees (1987) tried to incorporate one-year enrollment patterns that he considered to be more typical of community college students in his measure of persistence. Recognizing the prevalence of stopping-out behavior among these students, he re-labelled students who enrolled in Fall, left in Spring, and reenrolled in Fall as persisters rather than lumping them in the drop-out group.

Moline (1987) chose not to define persistence in a categorical fashion as other researchers had done. Instead, she measured persistence in terms of accumulated student credit hours over a two-year period.

Pascarella, Smart and Ethington (1986) chose to define their dependent variable in terms of persistence in the higher education system rather than limiting their study to persistence in a single institutional setting. As a consequence, they tracked their cohort over nine years and across enrollment in several institutional settings.

With the exception of the Bean and Metzner and Nora and Voorhees studies, only first-time, full-time students were studied. Nora and Voorhees included everyone on-campus regardless of enrollment status, while Bean and Metzner's sample was composed solely of part-time students. Institution-specific studies also differed with regard to urban-suburban locale.

These studies demonstrate the institutional-specific nature of attrition and the degree to which rates of student persistence vary as a function of differing samples and time frames to measure student departure. The sensitivity of the model to these differences indicates the importance of thoughtfully identifying persistence definitions and student samples that best suit an institution's interests and goals. Policymakers must come to a decision as to the character of their educational mission and therefore to an understanding of the purposes for which students are to be admitted and retained within the institution. This exercise should help to clarify the types of student departure that will be the object of institutional action and those which

are to be considered the natural outcome of institutional functioning (Tinto, 1987). Only after careful considerations such as these will study results be useful for shaping effective new instructional delivery systems, curricula, and support services that meet the needs of non-traditional students.

Research Findings at CCP Related to Tinto's Model

Adoption of Tinto's model as a conceptual framework for guiding the development of strategies to remediate unacceptable student attrition requires an acceptance that institutional rates of departure are a reflection of the particular attributes and circumstances of a college. Since there is no generalized, all-purpose attrition model for all institutions, colleges need to develop their own models. Consequently, while the major variables underlying retention patterns at colleges and universities have been identified by Tinto (1975), local formulation of the model may vary considerably. Retention formulation cannot be considered valid for a particular institution unless it is based on representative data from that institution itself. (Atkins, 1982; Pascarella, 1986; Tinto, 1987). While an external literature review can provide a general and useful understanding of the complexity of the attrition phenomenon, in no way can it substitute for local research (Terenzini, 1984).

Bean and Pascarella encourage both correlational and experimental methods in the local research process. Descriptive/correlational studies can be reviewed as a first step in the study of attrition. The results from these studies can be used to set a framework for future research efforts, providing valuable guidance in identifying institutional characteristics and situations on a particular campus that may influence the persistence process. These factors can be tested in subsequent studies for their degree of causal influence on persistence.

A local literature review was therefore undertaken to identify salient local research findings which could provide guidance for the appropriate specification and measurement of variables in the model for use at Community College of Philadelphia (CCP).

General Retention Patterns At CCP

A sizeable information base has been built at CCP over the last nine years. Many Institutional Research reports have centered on some aspect of student-leaving behavior, and countless ad hoc, attrition studies have been pursued at the request of College staff. Although most of these studies had atheoretical, descriptive/correlational orientations, many have included measures that are consistent with the various concepts in Tinto's model.

A variety of CCP-related retention/persistence measures have been explored. While the following list of retention measures is not exhaustive, it fairly represents the diverse approach that the Institutional Research Office has taken to understanding the complexity of CCP student-leaving behavior.

Within Course Withdrawal Patterns

All Credit Students

Fall - 11% of course enrollments end up in withdrawal. Spring - 15% of course enrollments end up in withdrawal.

On-Campus - 15.5% of course enrollments end up in withdrawal. Off-Campus - 6.1% of course enrollments end up in withdrawal.

Within One Semester - Total College Withdrawal

6.3% of students who enroll on-campus withdraw totally before end of ninth week. This represents approximately 650 individuals.

Term-to-Term Retention

67% Fall on-campus credit students return in the Spring.

49% Spring on-campus credit students return in the Fall.

43% Fall off-campus credit students return in the Spring.

35% Spring off-campus credit students return in the Fall.

Retention to Graduation

Approximately 15% of entering credit students will eventually graduate from the College.

Retention to 30 College-Level Credits with a GPA Greater Than 2.0

16% of students who enter "college ready" will complete 30 or more college-level credits.

Retention Until Goal Achievement

[Based upon responses to surveys by former students who had successfully completed 12 or more college-level credits at CCP]

75% of students who enrolled to transfer had transferred by one year after CCP.

98% of students enrolling to improve current job skills were employed and 93% indicated that CCP had helped them improve occupational skills.

83% of students who enrolled to prepare for new job or to enter labor force were employed. Ninety-one percent of the career-entry students said CCP had helped with their career goals.

Credit Accumulation Patterns [On-Campus Students]

Median Number of College Credits Earned Before Leaving CCP [Fall, 1983 Class]

All Students	12
College Ready	12
Remedial	10

While a review of this listing demonstrates the conscious effort that has been made to consider both proximal and distal measures of persistence as well as indicators that take both student and institutional educational expectations into consideration, it nevertheless leads to the conclusion that CCP is not characterized by the long-term persistence of students.

Current Student Characteristics and Retention Patterns

While not explicitly addressed within the contexts of the model, student characteristics have proven helpful in terms of identifying specific groups of students who are least likely to persist and are therefore to be the target of persistence programs. Some of the most salient student groups with regard to persistence patterns are therefore discussed. In the 1987-88 academic year, 21,791 students enrolled in credit courses at both CCP's Spring Garden campus and at off-campus sites. Thirty-eight percent (38%) of these students were new to the College and an overwhelming percentage (73.4%) enrolled part-time (fewer than 12 credits per semester). Approximately 83% of the total credit FTE's were on-campus students, while the remaining 17% were generated off campus through the Division of Community Services and Continuing Education.

Within the context of student persistence, an important distinction between on- and off-campus students needs to be noted directly. Student demographic profiles, intentions, and educational experiences are quite different for off- and on-campus students [Institutional Research Report (IR) #39]. These differences are reflected in divergent student persistence/withdrawal behavior across these two cohorts. For example, on-campus students are more likely to persist at CCP than off-campus students. In the most recent semesters, approximately 68% of the on-campus students re-enrolled in the following Spring semester and 49% persist from a Fall-to-Fall semester. Comparable figures for off-campus students are 40% and 34%.

This pattern of student persistence difference is consistent with patterns of cumulative credits earned. On-campus students, registered in any recent Fall semester, have typically earned more than twice as many CCP credits (15) as off-campus students (6 credits) [(Annual Statistical Compendium, 1988)].

These persistence differences are not surprising given the diversity in institutional objectives and structure of on- and off-campus programs. Degree programs are not offered at off-campus locations. Consequently, in the past, institutional interest in persistence was focused on on-campus enrollments. The following research results are therefore not representative of off-campus persistence patterns.

While student demographic variables, in and of themselves, have generally not been useful in predicting attrition when other factors such as motivation and socioeconomic status are controlled, student characteristics can be helpful in locating subgroups of students within the institution who tend to have larger percentages of dropouts. In general, student gender, ethnicity and age information has been helpful in this identification process.

In recent semesters, on-campus, female students outnumber male students (60% female, 40% male). Black students are the majority ethnic group on-campus (48%), with 40% white, 6.0% Asian and 5% hispanic enrollments. The median age on-campus is 24 years old with 48% of the students categorized as non-traditional by virtue of their age (25+ years).

Previous research indicates that academic success is very different for black and white students in higher education. Attrition rates are generally much higher for black than for white students (Tracey and Sedlacek, 1987; Pascarella, 1985; Tracey and Sedlacek, 1984; Ramist, 1981; Astin, 1982). Since it has been demonstrated that different processes are involved in academic success for white and black students (Pascarella, 1985; Pascarella and Terenzini, 1980), it is frequently suggested that in studies of attrition separate analyses be conducted across ethnic groups.

An aggressive institutional commitment to minority access and retention over the last several semesters has resulted in considerable information concerning differential persistence patterns across ethnic groups. A synthesis of this information clearly indicates that persistence patterns associated with black and hispanic students, when considered as a group, are less favorable than comparable white and Asian patterns.

White students at CCP are more likely to graduate than are black or hispanic students regardless of the time frame that is used to obtain the measure of graduation status. If time to graduation is extended beyond two years, graduation rates associated with Asian students quickly exceed those for Blacks and Hispanics as well. After two years at CCP, 6% of the white students will have graduated, while considerably fewer black (2.2%), Asian (1.5%) and hispanic (1.4%) students earn a degree in this time frame. If the time to graduation is extended to six years, Asian students graduate with greatest frequency (20%) outpacing Whites (17.4%), Blacks (13.5%) and Hispanics (11.8%) [IR Report #34A].

A review of alternative persistence measures do not alter this trend. White and Asian students are the ethnic groups most likely to achieve upper classman status (successful completion of 25+ credits, 32% and 31%), followed in magnitude by black students (24%), and hispanic students (23%) [IR Report - Institutional Effectiveness Measures].

Not all students leave CCP voluntarily. Some are asked to leave for academic reasons such as poor academic progress or poor academic performance. Several years ago, a study was undertaken to determine the differential impact a new academic standards and progress policy had on CCP student subgroups. Results from this research indicated that black students were overrepresented in both the poor academic progress and poor scholarship categories. The same was true for Hispanics. While Asian students were

slightly overrepresented in the poor progress group, they were underrepresented in the poor scholarship group. White students were the least likely ethnic group to be dropped for either reason (IR Report #33). These trends are consistent with more recent information contained in a report of Institutional Effectiveness Measures as well as research conducted by Ott (1988), Carroll (1988), Sanford (1979), and Garber and Schell (1977).

In a recently released Institutional Research Report (#42), student persistence outcomes were defined in a more complex and global fashion than retention/attrition measures described to this point. Rather than using a single indicator of persistence such as graduation status, a variety of information including graduation status, credits accumulated, grade point average at time of departure, voluntary and involuntary withdrawal status, and current enrollment status after four years were used in combination to define four outcome categories: successful, probably successful, probably unsuccessful and unsuccessful. Within these categories, Asian and white students were the most successful (67% and 65%) student ethnic groups, while black and hispanic students were less likely to be placed in successful outcome categories (47% and 52%). Gender differences with regard to persistence patterns have also been the object of past-CCP research. In general, male/female persistence measures have been comparable regardless of the indicator studied. While females were slightly more likely to graduate than males, they were just as likely to be dropped for academic reasons (IR Report #33). Minimal gender differences were found when men and women were categorized in the complex persistence student outcome measure described in the preceding paragraph. Based on this indicator, 55% of the females and 54% of the males were designated as successful (IR Report #42).

The relationship between student age and persistence varies with different measures of the variable. In general, older students are less likely to achieve sophomore status (21.1%) prior to leaving CCP than the more traditionally-aged (21 years and younger) students (32.8%). Older students are also slightly less likely to earn an associate degree than the younger age cohort (Institutional Effectiveness Study). On the other hand, older students are less likely to be asked to leave for academic reasons (IR Report #33). Students between the ages of 16 and 21 were also less likely to be labelled successful (51%) than were older students (60%) [IR Report #42].

Past CCP research indicates that small differences in persistence patterns exist across student subgroups defined by gender or age. On the other hand, rather substantial and consistent differences in persistence were found across ethnic subgroups. Concern at both the national and local levels concerning the recruitment and retention of black students in higher education suggests the need for studies that provide an understanding of student subgroups defined by ethnicity.

Pre-Entry Attributes - Family Background

While black and hispanic CCP students, taken as a group, have higher attrition rates, are more likely to experience academic problems, and have slower progression rates than white and Asian students, it is important to note that these less successful outcomes are a function of other factors, not race. Family background differences are frequently implicated in this regard.

Family background has usually been conceptualized in the attrition literature by measures of socioeconomic status (SES). In general, national research results have indicated that greater levels of SES are associated with greater levels of student persistence. It is likely that this relationship between persistence and SES is less the result of parent's income and more likely a function of their educational level which is often related to how much parents value a college education for their children and therefore encourage their postsecondary educational plans (Ekstrom, 1985).

In the past, collection of direct measures of CCP student or parent income and parent education has been problematic. As a consequence, a comprehensive SES index consisting of a factor-weighted composite of income, unemployment, poverty level, occupational category and education level was constructed for areas of the City. Students were assigned a proxy SES measure based on the geographic location of their residence. The distribution of this SES measure indicates that in recent years, more CCP students have been characterized by lower SES designations (21% = lower SES; 35% = lower-middle SES) than by upper SES designations (29% = middle-upper SES; 15% = upper SES).

At the present time, relatively little is known about the relationship between persistence at CCP and student SES. Despite the importance of this variable, the only information that is available from past Institutional Research reports related SES to the four categorical student outcomes reported in IR Report #42. As expected, students with lower SES backgrounds were more likely to be classified as unsuccessful (48%) than upper SES-designated students (31%) (Grosset, 1988).

Another family background-type factor that has received some attention in the persistence/withdrawal literature is related to concerns about financing college, often times operationally defined by measures of financial aid. In general, results of these studies have been inconclusive about the impact of financial aid on student persistence.

In recent semesters, approximately 65% of full-time and 43% of part-time CCP students received total or partial financial aid. The relationship between student persistence at CCP and financial aid awards is inconsistent over different persistence

measures. While financial aid recipients are somewhat more likely to persist to graduation (tracked over 4 years) than are students who receive no aid, financial aid students are also more likely to be dropped for academic reasons (IR Report #33).

Based on results from both external and internal research, it seems important to consider student socioeconomic status including financial need, in order to gain an understanding of the causes of student attrition.

Pre-Entry Attributes - Skills and Abilities

Approximately, 30% of the entering Fall, 1983 CCP student body were either dropped for academic reasons or on probation at the end of their final term (Institutional Effectiveness Report). Measured from a slightly different perspective, 8% of all enrolled students in any semester are dropped due to the CCP Academic Standards Policy (IR Report #33).

While it is hard to find national figures which are exactly comparable, Tinto estimates that between 10 and 15% of all institutional departures arise because of academic failure. Naturally, this figure will vary greatly among different types of institutions.

Based on the aforementioned information, it appears that voluntary withdrawals are more common than those of an involuntary nature; however, many students who choose to leave on their own do so for academic reasons. National estimates indicate that between 10 to 30% of voluntary withdrawals leave because of academic difficulties, either perceived or actual.

Student-entering skills and abilities have generally proven to be important for predicting attrition, especially attrition related to academic factors. In the retention literature, admission test scores, such as SAT's, have typically been used as measures of student-entering abilities. The relationship between this measure and student persistence is an obvious one, lower college-admission test scores are related to higher attrition and imply that students with lower entering abilities have to work harder to succeed in college (Ott, 1988; Sanford, 1979; Garber and Schell, 1977; King, 1988).

Since CCP is an open-access institution, applicants are not required to submit test scores for admission. Entering students are, however, required to take a battery of tests that measure reading, writing, arithmetic computation and algebra skills. These test results are used to place students in appropriate courses for their ability level.

A sizeable number of CCP students enter with deficiencies that require some remediation work. Consider that in Fall, 1986, 52% of the English courses taught on campus and 41% of all Math

courses were taught at the remedial level (Annual Statistical Compendium, 1987). Comparable Spring, 1987 figures are 30% and 45%.

Reading and writing placement test scores have generally been good predictors of student persistence at CCP. Students who entered with deficiencies in these skill areas were less likely to graduate in four to six years and were more likely to be dropped from CCP for academic reasons than students with higher scores (IR Report #33).

For many CCP students who enter with academic deficiencies, defined by placement test scores, some remedial coursework taken in conjunction with selected College-ready courses is prescribed. Some students, however, require more support and structure in order to improve their chances to succeed. These students are placed in Educational Support Service (ESS) programs such as Project II, ASK or Act 101 programs. In recent Fall semesters, about 10% of the entering classes were placed in one of these educational support programs and an additional 6 to 9% enrolled in some level of pre-College remediation, independent of the structure of the ESS programs.

Persistence outcome difference associated with students who enter needing remediation and those entering as College-ready are what would be intuitively expected. Between 36 and 40% of the students who entered as Project-II students were dropped for either poor scholarship or progress or on probation at the end of their final CCP term. Forty-two (42%) to 49% of the students who entered at a remedial level but were not placed in the structure of ESS programs left CCP under the aforementioned conditions. By comparison, 23% of entering College-ready students were experiencing academic problems when they left CCP (Institutional Effectiveness Report).

If cumulative credits earned at CCP prior to leaving is compared across student subgroupings based on entering abilities, an interesting trend emerges. Students needing remediation who were placed within the structure of Project II or Act 101 earn, on the average, identical levels of credits (21.06) prior to leaving CCP as students who enter College-ready (21.08). On the other hand, students entering at non-College-ready levels who receive a lesser degree of support earn considerably fewer credits (13.9 to 15.7) [Institutional Effectiveness Report].

While entering students in structured remediation programs are likely to persist to comparable levels of earned CCP credit hours as entering College-ready students, they are less likely to earn a CCP degree. Four years after initial enrollment, approximately 8% of the College-ready cohort graduated, compared to 3% of the structured remedial group. Between 0.5 and 2% of the unstructured remedial group graduated in this period of time (Institutional Effectiveness Report).

A study of the more complex categorical outcome measure indicates that approximately 60% of the entering College-ready students are successful, compared to 42% of the structured remedial students and only 26 to 29% of the unstructured remedial students (Institutional Effectiveness Report).

Results related to student-entering abilities and persistence indicate that students who enter at remedial levels are at a disadvantage with regard to a variety of persistence measures. However, with appropriate College support that compensates for previous educational deficiencies, persistence outcomes for students who enter with deficient College-ready skills can be improved.

Pre-Entry Attributes - Prior Schooling

In the attrition literature, prior schooling measures have typically included high school achievement variables such as secondary school grades, class ranking, subjects and number of courses taken in high school.

Nationally, high school grades and rank have been found to be some of the best predictors of student persistence in higher education. In general, individuals who took more courses in English, math, foreign language and physical sciences tend to persist more than students with other high school course experiences.

Unfortunately, most of the studies that have supported the validity of the relationship of high school achievement and persistence represent samples based on 18 to 24 year olds. However, the predictive ability of these types of factors erode the further removed in time the student is from these high school experiences.

Because of the open-admissions orientation of the College and the substantial number of older entering students, little secondary school information has systematically been collected from students at CCP. As a consequence, little is known empirically about the relationship between high school achievement factors and student persistence at CCP.

Several years ago, however, an ad hoc study was conducted that profiled student academic achievement at CCP by type of Philadelphia high school attended (public vs. private). The results indicated that students with private high school backgrounds outperformed (higher GPA's, lower attrition rates) students with public secondary school backgrounds.

Stopping out is a fairly typical enrollment pattern for students at community colleges in general, and CCP in particular. A study conducted several years ago in which students were tracked over eight semesters indicated that 18% of an entering

student cohort did not enroll at CCP in consecutive semesters. These students stopped out and returned at least once over a four-year period (IR #5).

While prior CCP attendance would generally be considered a dimension of persistence, it can also be viewed as a prior schooling variable. In this regard, a study of the enrollment flow of the 1982 graduating class indicated that stop-out behavior did not have a negative impact on long-term student persistence measured by degree completion. Approximately 30% of the 893 students who graduated in 1982 stopped-out for at least one of the semesters between their initial CCP enrollment and graduation. Since semester grade point average prior to dropping rarely fell below 2.0, it was conjectured that stopping out for these eventual graduates was more a function of personal factors rather than those of an academic nature (IR Report #23).

Another indication that stop-out behavior may not adversely effect longer-term student persistence patterns was derived from a survey of former CCP non-graduates in which 64% of the survey respondents indicated they planned to re-enroll at CCP at some future time (IR Report #9).

Student Goals and Commitments

On the surface, the association between persistence and student goals and commitments appears so obvious that research on the relationship could be considered trivial and unnecessary. Nevertheless, research in this area has demonstrated that goal and commitment information has a direct impact on student persistence behavior.

Student goal has generally been narrowly operationalized by degree aspiration information. Research has demonstrated that students with higher degree intentions are more likely to persist than those with lower or no degree aspirations.

Measures of commitment to the goal have typically included students' self-assessment of the definitiveness of their degree intentions and institutional commitment has generally taken the form of student expectations regarding their anticipated satisfaction with the college they are about to attend and their assessment of the likelihood that they will eventually transfer from the college. Research has indicated that the more likely a student is to possess a transfer goal or the less definite they are about their satisfaction with the college or their intentions, the less likely they will be persist.

In community college research settings, institutional commitment has also been measured by student self-reported intent to leave the college at the end of the term or academic year. This measure has proven to be strongly associated with actual attrition.

CCP student goal and commitment information has been collected systematically over the last several years. A wealth of this information has been amassed locally and, consequently, a sizeable amount of local literature is available concerning the relationship between this important area of student data and student-leaving behavior at CCP.

A profile of the Fall, 1986 entering student body indicates that a little more than half (56%) of these students indicated they planned on earning a certificate or associate degree at CCP. At the other end of the persistence continuum, 12% indicated their first semester would also be their last semester at CCP.

Fifty-four percent (54%) of these students planned to transfer to a four-year college at some future time, 29% planned to be working at a new job immediately after leaving CCP, another 21% planned to be working at their current job, and 13% were uncertain of their post-CCP plans when they initially enrolled at CCP.

A minority of students (31%) expressed complete certainty with regard to their intentions, 41% expected they would clarify their goals at some point while at CCP, and 28% explicitly stated they would need assistance in developing their educational goals (Annual Statistical Compendium, 1987).

The predictive accuracy of student goal information was explored several years ago in IR Report #15. This study was undertaken in order to determine if potential dropouts could be accurately identified by their responses to goal and intention questions such as those discussed in the preceding paragraphs. A persistence model based on this information proved helpful in predicting short-term persistence, measured from a Fall to a subsequent Spring or Fall semester, but the model did not prove helpful in predicting longer-term persistence.

The relationship between persistence and former student goals was extensively explored several years ago in IR Report #2. Self-reported measures of student educational objectives, goal achievement, and future enrollment intentions were used in a composite fashion to designate students who left prior to earning a degree as completors, stopouts and dropouts.

Based on reclassifications, only 12% of the former students in the sample were truly dropouts, that is, students who withdrew from CCP before completing their educational objectives and had no intention of returning to higher education. Forty-four percent (44%) were redesignated as stopouts, defined in the study as students who withdrew before achieving their objectives but nevertheless intended to re-enroll at CCP at some future time. The remaining students (44%) were labelled as completors since they indicated that they had completed their educational objectives which did not require earning a degree.

In the same study, persistence patterns were compared across four categories of students defined by enrollment objectives. These comparisons indicated that students who enrolled out of personal interest or to gain specific job-related skills persisted at CCP for considerably fewer CCP credit hours than students who enrolled to prepare to either transfer or to obtain a new job.

Further evidence of the predictive accuracy of student-stated degree aspirations and persistence measures is provided by other student surveys. Former CCP graduates and non-graduates are asked within the format of a survey questionnaire to retrospectively state what their degree intentions were at the time they initially enrolled at CCP. While nearly all (97%) of the graduates who responded to the survey said they were initially degree-oriented, half of the students who left CCP prior to earning a degree indicated they initially had degree aspirations (IR - In Brief #41).

The relationship between transfer intent as a measure of institutional commitment and persistence behavior was implicitly explored in a recent study of CCP student transfer patterns to Temple University. One of the many results of this study indicated that only one-quarter of the students who applied for admission to Temple had a CCP degree. Stated another way, few transfer students persisted at CCP to degree completion. The average number of CCP credits that all students earned prior to transfer was 47. The same study indicated that transfer-oriented students were persisting at CCP for shorter periods of time than in past semesters (IR Report #40).

When goal statement response patterns for CCP freshmen (24 or fewer accumulated credits) and sophomores (25+ credits) were considered separately, several interesting differences emerged. Sophomore continuing students were more degree-oriented and less uncertain concerning their goals than were freshmen (IR In-Brief, Goal Statement Patterns). These differences may reflect, in part, changes in the composition of the student body brought about by the withdrawal behavior of students without degree aspirations and/or students who were less certain about their educational plans.

In addition to holding traditional educational goals, such as degree attainment and transfer or career aspirations, CCP students also have a variety of expectations related to their personal and social development. Recent student survey (Spring, 1986) results indicated that student respondents were very interested in the following kinds of development: self confidence (58%), meeting new and interesting people (43%), reducing dependence on other people (44%), self-reliance and self-discipline (46%), and interpersonal skills (40%) [IR Report #37].

Given the substantial levels of student interest across a variety of non-academic growth areas, it seems inappropriate to ignore the social integration of students in the study of the attrition process at CCP, even though the reformulation of Tinto's model for use at commuter and community colleges has generally done so.

The importance of the relationship between student goals and intentions and persistence implied by Tinto's model appears to be empirically supported by the local research results presented here. Students with degree intentions were more likely to persist to graduation than were non-degree-oriented students.

Given the low levels of reported student degree aspirations, a relatively high level of both student goal uncertainty and intent to eventually transfer out of CCP, coupled with the percentages of students who stated upfront that they intended to enroll at CCP for only one semester, the relatively low level of student persistence to graduation should not be unexpected.

Within the context of the model, transfer students, by virtue of their transfer intention, are assumed to possess a lower level of institutional commitment than non-transfer students. Local information appears to support this relationship since CCP transfer students were far more likely to be non-graduates of CCP than graduates. Transfer students also persisted to fewer CCP credits hours than did students with non-transfer, career goals.

The difference in short- and long-range predictive accuracy reinforces the importance of gathering student goal and intention information at several points in their flow through an institution. As implied by Tinto's model, student goals and commitments are changeable over time.

One further point worth noting is related to the importance of building the student-oriented perspective into the definition of the dependent variable, persistence. Student self-reported assessments of goal completion indicated that a large percentage of 'dropouts' actually completed their objectives, despite not earning a degree. Additionally, it was demonstrated that a significant portion of the 'dropout' sample were really stop-outs, since even though they reported they had not completed their goals, they planned to reenter higher education at a future date. Unless the student perspective is considered, research may result in misleading conclusions about the causes and consequences of student attrition.

Integration Variables

Typical measures of academic and social integration that appear in the persistence literature have been self-reported student assessment of the quantity and quality of interactions with faculty, administrators, other College staff, and fellow students. In-class and out-of-class student-faculty contacts related to both academic and non-academic topics are typically documented as measures of integration, as well as student participation levels in extracurricular activities and informal peer group interactions on academic and social topics.

Other measures of academic and social integration which have appeared in the literature have included grade point average, hours per week spent on studies, the number of friends on campus, and presence of a sizeable group of students on-campus with similar lifestyles and values.

A number of CCP student surveys have requested respondents to document their awareness and use of a variety of academic and student services offered at the College. In turn, respondents are asked to evaluate the services they have used. In response to these questions, CCP students have generally indicated somewhat more satisfaction with academic factors than with social factors. Students enrolled in the Spring, 1986 semester awarded highest ratings to factors related to the quality of instruction, respect of faculty, variety and convenience of course offerings, and the availability of instructors In contrast, the availability of both student activities and informal places to gather on-campus with other students received lowest marks from respondents (IR Report #37).

An interesting response pattern that emerged from the analyses of survey information was the frequency with which sophomore-level students expressed a lesser degree of satisfaction with both academic and social factors than freshmen survey respondents. The needs of freshmen and sophomore students may therefore be quite different, and the College may do a better job of providing support services to freshmen than to sophomores. This could, in part, explain the greater attrition rate associated with sophomore students (only 27% of the Fall, 1983 entering cohort achieved sophomore status prior to dropping out).

It was also noted in this report that patterns of student service usage were not always consistent with stated student goals. While many respondents indicated they were interested in social-type goals, few of these students reported participation in student and recreational activities.

Similar questions were posed in a 1986 survey of former CCP students, both graduates and non-graduates. Response patterns associated with knowledge, usage, and satisfaction with student services indicated that graduates were more knowledgeable of and more likely to use services such as academic advising,

counseling, tutoring-learning lab services, career planning, recreational and athletic events, financial aid, and library services than were non-graduates. Degree persisters also expressed significantly more satisfaction with services, particularly those related to the academic environment.

In a similar study [IR study (#12)] that was conducted in Fall, 1980, the relationship between persistence and student services usage patterns was explored. Students documented their use of, and satisfaction with, 27 college services including placement and testing, transfer counseling, and cultural/social events.

Persistence, in this study, was measured over one semester, Fall to Spring. A majority of the Fall, 1980 sample (83%) re-enrolled in Spring, 1981, while 17% of the sample did not re-enroll at CCP at that time.

Persisters and non-persisters were further divided into those with high Fall semester GPA's (2.0+) and GPA's lower than 2.0. This resulted in the following distributional pattern across the four groups: high GPA persisters (65%), low GPA persisters (18%), high GPA non-persisters (13%), and low GPA non-persisters (4%).

The original 27 service-related items were collapsed into five categories: counseling, financial aid, extracurricular activities, general administrative services, and miscellaneous academic services.

In general, the results of this study supported the importance of student integration in the retention process. High-GPA non-persisters were the least likely of the four student subgroups to be aware of, or make use of, student services. They were also significantly less satisfied with the services they employed than the three remaining student groups.

In summary, local research general supports the relationship between student integration and persistence implied by this model. The empirical evidence would appear to indicate that academic integration is more likely than social integration among CCP students.

External Commitments

Despite the inclusion of the concept of external commitments in Tinto's model, few persistence studies have built-in related measures into their designs. Perhaps, the exclusion of this information was justified on the basis that most persistence samples have been limited to full-time students.

Two primary sources of external commitments come readily to mind, family and work. Research by others (Henry and Johnson,

1987; Astin, 1982) indicates that working while attending college is not a hindrance to achieving a degree. In fact, having a job on-campus may promote good social and academic integration.

Close to half (45%) of all students in most recent semesters reported they were working either full- or part-time while they were attending classes at CCP. Few of the working students (3.6%) had work experience in their field of study.

The majority of on-campus students (74%) were single, 8% were either separated or divorced, less than one percent (0.7%) were widowed, and 17% reported they were married. Two-thirds of the students (66.4%) had no dependent children at the time they were surveyed with the remaining third reporting at least one dependent.

Very little is currently known about the impact of family- and work-related factors on CCP student persistence. One of the few clues related to this relationship was obtained from a student survey which indicated that non-persisters were more likely to have been employed than were persisters. Hours worked per week, however, was not related to student persistence to graduation (IR Report #2).

The only other clues as to the nature of the relationship between external commitments and persistence are available from a profile of Fall, 1981 students (IR Report #20) which divided the student body into new (32%), continuing (62%), and students who were reentering after stopping out for a period of time (6%). The distribution of employment and family characteristics for stopouts and continuers were quite similar. Most notable differences were that continuing students had more children than stopouts and were also more likely to be employed full-time than were stopouts. These results appear to be inconsistent with expectations based on the model since, at the time of the survey, continuing students (persisters) appeared to have greater employment and family commitments than did stopouts (non-persisters).

Appropriateness of Tinto's Model for CCP

Many of these effectiveness results, when viewed from a correlational perspective, exhibit patterns which are consistent with the conceptual framework of Tinto's model. In particular, the data appear to support the importance of the two-core concepts of academic and social integration. Consider the following set of independently-collected facts concerning CCP freshmen and sophomore student differences.

- Sophomore students reported in surveys that they were less satisfied with their overall CCP experiences, academic and social, than freshmen.

- Sophomore students in the same survey reported a lack of progress on a number of important cognitive goals such as the ability to critically evaluate ideas.

- Less than half of entering students persist at CCP to achieve sophomore status (24+ cumulative registered hours).

The following set of information concerning differences in remedial student outcomes also appears to lend support to the importance of placing students into a carefully integrated educational experience:

- CCP students who entered at a remedial level and participated in the College's remedial and developmental programs persevered at CCP for the same number of credits as students who entered at a college-ready level.

- Remedial-level students enrolled in support programs achieved greater levels of academic success than remedial-level students who did not receive support through CCP developmental programs.

- Students at a remedial level who did not have the support of developmental programs dropped out sooner than remedial-level students with support.

The descriptive/correlational data that have been assembled during the past several years represent one of the first steps in the evaluation of institutional effectiveness at CCP. This effort has provided a valuable framework for future research efforts by giving insight into both the differential effectiveness across student subgroups and important institutional characteristics that may contribute to student development processes. The next steps in the evaluation of institutional effectiveness are studies that begin to examine these seemingly important factors for their degree of causal influence on student development.

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